

ture. After the peritoneal toilet has been completed a pocket is made by blunt dissection between the peritoneum and the under surface of the rectus muscle, on either one or both sides of the incision, according to the number of grafts to be used. The ovaries are then carefully inspected and areas of cystic degeneration are culled out after which the remainder is cut into disks  $2 \times 2 \times \frac{1}{2}$  cm. and from one to three of these disks transplanted into the already prepared pockets. No sutures are used to hold the grafts in place. The abdominal wall is then closed in the usual manner.

**Radiation Versus Surgery in the Treatment of Uterine Cancer.**—The working rules that have been adopted by CROSSEN (*Jour. Missouri State Med. Assn.*, 1922, 19, 55) are that in the advanced inoperable cases as well as in the borderline cases of uterine cancer, radium is our most effective remedy. The palliative effect is nothing short of wonderful. The enlarged carcinomatous cervix with its bleeding papillary masses melts away as if by magic and the cavity closes, largely or entirely by granulation. But it should be remembered that radium is two-edged and may do as much harm by causing excessive scar tissue contraction or actual stimulation of the cancer cells as it may do good, consequently its use requires decided caution. It is hoped that in time the curative effects of radium may be extended to the limits of the pelvis, but that ideal has not yet been attained. In some extensive cases the cancer is completely eliminated by the radium; this result is attained, however, in only a small proportion of the cases. It may be hoped for but it is so infrequent in the classes of cases under consideration that the remedy must be presented to the patient as essentially a palliative measure, with only a possibility of cure. It is advisable to employ also deep roentgen-ray therapy to affect the cancer cells lying beyond the effective reach of the radium, but even this combination must be classed generally as palliative rather than curative. In clearly operable cases, that is, in those early cases apparently still confined to the uterus, Crossen feels that immediate removal of the uterus and adjacent tissue likely to be involved is the safest plan. Theoretically we should be able to cure these patients with radium with as great certainty and with far less danger than with the knife; but so far the actual results in cancer of the uterus do not justify displacement of the knife by radium in these early cases. In something over one thousand collected cases of carcinoma of the cervix treated by radium five years previous to the reports, about 20 per cent were cured—approximately the same percentage as by radical operation. When the cases were divided into classes it was found that more of the advanced and borderline cases were cured by radium than by operation, while of the early operable cases the percentage of cures by radium (31 per cent) fell decidedly below that by operation (40 to 45 per cent). We know what can be done with the knife in the individual case but we do not know the extent of the effectiveness of radium in an individual case until it is tried in that case and in the time required for trial by radium the chance of cure by operation slips away. In order to give the patient the best chance of cure in these early cases, it is advisable to employ both radium and operation. First give a heavy dose of radium, the same as though depending on it to effect a cure, then within a week or ten days do the

radical operation. The operation should be carried out within a short time after the radium treatment because later the radium treatment may have caused such marked connective tissue changes as to increase very decidedly the difficulties and hazard of the operation. This plan of treatment for the early case is based on the assumption that the patient is a good operative risk. If the patient has some serious complication making her a poor operative risk, then her best chance of survival cancer-free may be through radium without operation. The decision for or against operation and of the extent of operation, turns on a balancing of the hazards pro and con—the hazard of operation, the chance of failure of radium to kill the cancer cells in that individual, and the chance of metastasis near and far. On account of the latter danger, it is advisable to supplement the other treatment by deep roentgen-ray treatment.

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**Urethral Stricture in Women.**—Stricture of the urethra in women is a condition which is very often overlooked, according to STEVENS (*Cal. State Jour. Med.*, 1922, 20, 51) although it may be responsible for marked functional and organic disturbances in the genito-urinary tract in this sex. It is a generally accepted idea that strictures of the female urethra are very uncommon. While this is true so far as the lumen of the canal is concerned, strictures at the meatus on the other hand are frequently encountered. As the female bladder is especially sensitive to reflex influences, marked subjective symptoms are often produced by comparatively slight obstructions. It must be remembered however, that these symptoms may be partly due to the accompanying urethritis or trigonitis. Frequent urination is the most common symptom of which these patients complain. The next most common symptom is pain which is referred to the urethral or bladder regions. The diagnosis is best made by means of the olive-tipped bougie. The majority of these strictures should be treated by means of gradual dilatation, absorption of the constricting exudate being best promoted by this procedure. In the presence of scar tissue however, meatotomy, internal urethrotomy, or external urethrotomy with resection of the scar tissue is often indicated. The symptoms improve, as a rule after two and disappear after five dilatations, recurrence being very unusual if treatment is not too abruptly discontinued.

This subject has also been carefully presented by WYNNE (*Surg. Gynec. and Obst.*, 1922, 34, 208), who states that the great majority of strictures are single, although multiple ones have been reported; and although the stricture may be located in any part of the urethra, the external meatus and anterior portion are the favorite sites. He classifies strictures as traumatic, inflammatory, neoplastic, congenital, senile and unknown, which terms are self-explanatory. The onset is usually gradual and the course progressive. In some cases the only symptoms noted by the patient are the small stream voided and the length of time required for the act of voiding, but in the great majority of cases there is also some degree of dysuria. The diagnosis is made by examination with sounds or, preferably, olive-tipped or bulbed bougies as advised above by Stevens. In certain cases the strictured area can be felt through the vagina. The endoscope is necessary for a complete examination. Wynne treats these patients by gradual dilatation of the

stricture with sounds, bougies, or Hegar dilators over a considerable period of time. This operation is carried out after a local anesthetic has been applied to the urethral mucous membrane. The dilating instruments should be generously lubricated before insertion and the largest instrument passed at any sitting should be left in place for from ten to fifteen minutes. The size of the dilators used must be determined each time by the degree of pain caused. It is necessary to avoid any severe pain when the treatments are so frequently repeated, as well as to avoid considerable trauma. At first daily treatments are given, but later the intervals between sittings can be increased, and the treatments should be continued over a period of several months. These patients ought to be warned that recurrences are common, and that for this reason they are to return several times a year for dilatation.

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## PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

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**On the Claim that Some Typhoid-Paratyphoid Strains Survive the Milk Pasteurization.**—KRUMWIEDE and NOBLE (*Jour. Infect. Dis.*, 1921, 29, 310) found that "there is no evidence that bacilli of the typhoid and paratyphoid group even in small numbers, will survive heating to 60° C., for twenty minutes," suggesting that the apparent heat resistance of the strains reported by TWISS (*Jour. Infect. Dis.*, 1920, 26, 165) was due to the test method employed, namely, the use of cotton plugged flasks submerged to twice the depths of the milk. The authors used 27 typhoid cultures recently isolated from carriers, 7 paratyphoid A, 12 paratyphoid B and 4 enteritidis cultures. Milk was sterilized and 100 cc of it was infected with the cultural growth from two twenty-four hour agar slants suspended in salt solution. The bacterial suspension was added after the milk had reached 60° C., rubber stoppers were inserted, the bottles vigorously shaken and completely submerged in a water bath for fifteen minutes. No bacteria survived a pasteurization period thus limited closely to fifteen minutes at 60° C.

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**Antirabic Vaccination by Means of Desiccated Virus.**—With slight modifications, D'AUNOY (*Jour. Infect. Dis.*, 1921, 29, 261) has employed a desiccated virus prepared according to HARRIS on account of its capability of production in a short time and preservation over indefinite periods. Full grown, healthy rabbits, averaging 2200 gm. were inoculated into the lateral ventricles after trephining with about 0.004 mg.

of desiccated fixed virus in 1 cc of sterile salt solution. The animal developed symptoms in six or seven days and when complete paresis had intervened, was killed by ether narcosis. The cord and brain were then removed aseptically, and the membranes were stripped off by needles. By grinding with salt solution, the nerve tissue was brought to a coarse paste in a mortar. Carbon dioxide snow was then added with constant mixing and triturating until the mass had solidified. The mass was then placed in a meat grinder and kept at a temperature of about 12° C. for a few hours, a small amount of CO<sub>2</sub> again added and quick grinding accomplished. The ground material was spread in a thin-layer and dried in a Scheibler desiccator at from 12 to 18° C. With a vacuum of 2 mm of mercury, and phosphoric anhydride, complete desiccation was procured in about thirty-six hours. The dried virus was kept in large glass tubes in a dark place at from 10 to 15° C. Control cultures of every batch of virus were instituted. The unit or "minimal infective dose" consists of the least amount of virus which within five days after preparation will cause paresis in a 2400 gm. rabbit on the seventh day following intracerebral injection. A virus containing 300 to 500 "minimal infective doses" per mg. was readily produced. It will lose no infectivity at 10° C. for over two years and will last about three years at 8 to 12° C. Adults were given 11 treatments of a total of 17,750 "minimal infective doses" except in severe head injuries when 15 treatments of a total of 25,750 m. i. d. were administered subcutaneously. Only 1 death following complete treatment is reported in 1538 treated patients; 697 injuries by animals proved to be rabid. No paralysis or other untoward effects were encountered in the treated persons. The author feels that his results "on the basis of comparison with similar reports on the use of the original Pasteur dried cord method, argue for the efficiency and safety of the desiccated virus method of prophylactic antirabic vaccination."

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**Botulism from Cheese.**—Evidence that botulism is widely disseminated in this country can be found in the sporadic reports which have appeared in recent years. Although it was once thought that the botulinus toxin was produced only in the presence of meat protein, Dickson was able to find it in the presence of vegetable protein and now NEVIN (*Jour. Inf. Dis.*, 1921, 27, 226) reports the recovery of both *B. botulinus* and its toxin from home-made cottage cheese, after the ingestion of which three persons died. Two cases presented paralysis of the muscles of deglutition, suffusion of the face, ptosis, total dilatation and failure of the pupils to react to light and paralysis of the muscles of the throat with difficulty of speech. The third patient was unable to swallow. There was no loss of consciousness or paresis of any other part of the body. Subcutaneous inoculation of 3 cc of an emulsion of the cheese, after forty-eight hours' incubation at 37° C., killed guinea-pigs within thirty-six hours. By anaerobic methods, a Gram-positive, motile, oval, sporebearing bacillus was isolated. No capsule could be demonstrated, gelatin was liquefied slowly and milk coagulated in three days. Many carbohydrates were fermented with the production of gas and the odor of butyric acid. A potent toxin was produced on a peptone-free medium. Guinea-pigs